



Encluse  
AF/3636  
\$

PTO/SB/21 (02-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/805,586
Filing Date	03/13/2001
First Named Inventor	Lotspih
Art Unit	3636
Examiner Name	Edell, Joseph
Attorney Docket Number	DP-301891

Total Number of Pages in This Submission

### ENCLOSURES (Check all that apply)

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Fee Transmittal Form<br><input checked="" type="checkbox"/> Fee Attached<br><input type="checkbox"/> Amendment/Reply<br><input type="checkbox"/> After Final<br><input type="checkbox"/> Affidavits/declaration(s)<br><input type="checkbox"/> Extension of Time Request<br><input type="checkbox"/> Express Abandonment Request<br><input type="checkbox"/> Information Disclosure Statement<br><input type="checkbox"/> Certified Copy of Priority Document(s)<br><input type="checkbox"/> Response to Missing Parts/ Incomplete Application<br><input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)<br><input type="checkbox"/> Licensing-related Papers<br><input type="checkbox"/> Petition<br><input type="checkbox"/> Petition to Convert to a Provisional Application<br><input type="checkbox"/> Power of Attorney, Revocation<br>Change of Correspondence Address<br><input type="checkbox"/> Terminal Disclaimer<br><input type="checkbox"/> Request for Refund<br><input type="checkbox"/> CD, Number of CD(s) _____ | <input type="checkbox"/> After Allowance communication to Technology Center (TC)<br><input checked="" type="checkbox"/> Appeal Communication to Board of Appeals and Interferences<br><input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)<br><input type="checkbox"/> Proprietary Information<br><input type="checkbox"/> Status Letter<br><input type="checkbox"/> Other Enclosure(s) (please Identify below): |
|--|---|---|

Remarks

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or individual name	James M. Robertson Reg. 36,905
Signature	
Date	04/12/2004

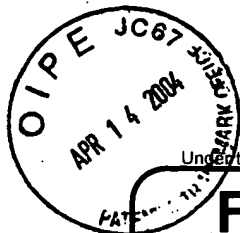
### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	James M. Robertson		
Signature		Date	04/12/2004

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PTO/SB/17 (10-03)

Approved for use through 07/31/2006. OMB 0651-0032  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT

(\$)

## Complete if Known

Application Number	09/805 586
Filing Date	03/13/2001
First Named Inventor	Lotspik
Examiner Name	Edell, Joseph
Art Unit	3636
Attorney Docket No.	DP-301891

## METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit  
Account  
Number  
Deposit  
Account  
Name

50-2802

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$)

NA

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent	-20** =	X	
Multiple Dependent	-3** =	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

(\$)

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	330.00
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

330.00

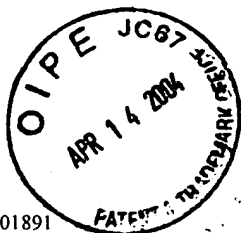
## SUBMITTED BY

Name (Print/Type)	James M. Robertson	Registration No. (Attorney/Agent)	36,905	Telephone	864 987-9696
Signature		Date	04/12/2004		

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



DP-301891

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: John Anthony Lotspih  
Serial Number: 09/805,586  
Filed: 03/13/2001  
For: Tunable Control Side Air Bag Cushion  
  
Group Art Unit: 3636  
Examiner: Edell, Joseph F.

**Brief on Appeal**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the final Office Action mailed November 13, 2003 and further to the Notice of Appeal filed February 12, 2004, Appellant hereby submits the requisite appeal brief pursuant to 37 CFR § 1.192.

**REAL PARTY IN INTEREST**

The real party in interest is Delphi Technologies, Inc. located in Troy, Michigan, USA.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

04/14/2004 ZJUHA

00000098 09805586

01 FC:1402

330.00 0P

### **STATUS OF CLAIMS**

Claims 1-20 are pending in this application. No claims have been canceled. No claims have been allowed. Claims 1-20 are the subject of this appeal.

### **STATUS OF AMENDMENTS**

No amendments have been filed subsequent to final rejection.

### **SUMMARY OF INVENTION**

The invention is directed generally to a side air bag assembly having cooperative portions for cushioning the torso and head of a vehicle occupant during a collision event. As illustrated in FIGS. 3 and 5 and described at page 7, line 20 through page 9, line 15, the air bag incorporates a pair of opposing, staggered flow blocking, expansion restraining elements (62, 64). These elements are preferably rounded in profile and are arranged in nonparallel relation to the gas flow path. The presence of these elements causes the inflation gas to flow around their location thereby defining a travel path for the gas which allows the torso protection portion to achieve early stage activation while still bringing the head portion into position. As noted at page 9, lines 7-10, the presence of the expansion restraining elements permits efficient utilization of available inflation gas within the portions of the bag which are intended to protect the torso and the head. As shown in FIG. 3, the elements restrain expansion of the deployed bag.

As illustrated in FIGS. 4 and 5, the air bag may be formed from a single piece of material. Representative construction techniques are described at page 9, line 16 through page 10, and line 11. As described at page 12, line 28 through page 13, line 4, a bag of single piece construction as shown in FIG. 5 having a non-seamed lateral side may be arranged so that gas is first directed towards that side, thus facilitating the use of relatively light weigh materials.

### **ISSUES**

Issue 1 - Whether claims 1-20 are unpatentable under 35 U.S.C. 112 first paragraph on grounds that the specification does not reasonably convey that at the time the application was

filed Appellant had possession of the invention as claimed wherein the restraining elements remain operative without failing?

Issue 2 - Whether claims 1-4, 7-15, and 18-20 are patentable under 35 U.S.C. 103(a) over U.S. patent 6,065,772 to Yamamoto et al. in view of U.S. Patent 6,129,377 to Okumura et al.?

Issue 3 - Whether claims 5, 6, 16 and 17 are patentable under 35 U.S.C. 103(a) over U.S. patent 6,065,772 to Yamamoto et al. in view of U.S. Patent 6,129,377 to Okumura et al. and in further view of U.S. Patent 5,618,595 to Matsushima et al.?

### **GROUPING OF CLAIMS**

For each ground of rejection which appellant contests herein which applies to more than one claim such additional claims to the extent separately identified and argued below, do not stand or fall together.

### **ARGUMENT**

*Issue 1 – Whether claims 1-20 are unpatentable under 35 U.S.C. 112 first paragraph on grounds that the specification does not reasonably convey that at the time the application was filed Appellant had possession of the invention as claimed wherein the restraining elements remain operative without failing?*

The Examiner takes the position that the specification fails to provide enablement for claiming expansion restraining elements adapted to remain operative so as to provide expansion restraint upon full inflation of the air bag cushion without failing. In this regard the Examiner takes the position that the specification does not define criteria for governing whether an expansion element is deemed to fail. The Examiner also takes the position that any element will fail if subjected to sufficient pressure or strain.

As regards the position taken by the Examiner that the specification does not satisfy the enablement requirement, Appellant notes that the test for enablement as set forth at MPEP §2164.01 is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). The present specification illustrates potentially preferred geometries for the restraining elements as well as illustrating and describing techniques for their formation including seaming welding and adhesive bonding. Certainly, since seams which remain intact are known, the use of such seams or other joining techniques should not require undue experimentation.

As regards whether the specification is required to specifically define criteria for determining failure, Appellants respectfully submit that failure of an expansion restraining element is a concept which would be well known to any ordinary person (e.g. splitting a pants seam) and would certainly be obvious to one of skill in the art. Specifically, failure would be well understood to be the loss of the restraining operative condition. On this point the MPEP notes that a patent need not teach, and preferably omits, what is well known in the art. MPEP §2164.01 citing *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). Even if failure of an expansion restraining element was not a well known concept, by describing the operative condition of the expansion restraining elements in the specification (page 8, lines 15-17) failure of that condition is also made clear.

As regards the Examiner's statement in the advisory action that any expansion restraining element will fail if subjected to sufficient pressure or strain, Appellant respectfully submits that this is irrelevant. Appellant notes that the claims call for the expansion restraining elements to remain operative without failing so as to provide expansion restraint upon full inflation of the airbag cushion. Thus, it is respectfully submitted that the fact that the restraining elements may fail if subjected to some other extraordinary event is of no consequence.

***Issue 2 – Whether claims 1-4, 7-15, and 18-20 are patentable under 35 U.S.C. 103(a) over U.S. patent 6,065,772 to Yamamoto et al. in view of U.S. Patent 6,129,377 to Okumura et al.?***

The basis for the outstanding rejections is the contention in the Office Action that it would have been obvious to modify the bag of Yamamoto et al. such that the cushion is formed from a single piece of material and the expansion restraint elements remain operative upon full inflation. The asserted motivation for making these changes is the suggestion in Okumura et al. that an air bag formed from a single piece of woven fabric is simple to manufacture and that expansion restraint elements that remain operative upon inflation allow for smooth flow of inflating gas.

Appellant respectfully submits that the Examiner fails to take into account the fact that the proposed modification of the primary reference would substantially alter the deployment character and final expanded profile of the cushion in the primary reference in contravention of the express teachings therein. In this regard, the Appellants note that the references must be considered in their entirety – including portions which would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)

The Examiner takes the position that the tear seam in the primary reference to Yamamoto et al. is not critical for successful deployment of the air bag assembly. This position appears to be in contradiction to the express teachings in the cited reference. In Yamamoto et al. the tear seam 57 is added with the specific purpose of providing a controlled staged deployment of desired character. Thus, the replacement of the tear seam with a seam that does not tear represents a substantial and fundamental change.

In justifying the rejection the Examiner takes the position that replacing the tear seam in Yamamoto et al with a seam that remains operative would still provide delayed expansion of the third chamber and does not substantially alter the deployment of the third chamber. Appellant respectfully submits that this position is contradicted by the teachings of the reference itself. Specifically, the latter stages of inflation would be greatly altered and the final expanded profile would be completely different. In this regard, Appellants note the following statements from the primary reference.

At Col. 9, lines 19-24:

*After the tear seam is entirely torn, the remaining part of the upper rear chamber 53 is deployed towards the vehicle rear side. The upper chamber 52 and the upper rear chamber 53 are combined into one, and the upper rear chamber 53 is substantially completely deployed. (Emphasis Added)*

At Col 9, line 61 – Col. 10, line 2:

*When the passenger is received by the lower chamber 51, and the upper chamber 52, the volume of the chambers 51 and 52 is reduced and the internal pressure thereof is temporarily increased. When the internal pressure of the upper chamber 52 increases, the tear seam breaks, gas flows into the upper rear chamber 53, and the upper rear chamber 53 is inflated and deployed between the side of the passenger's head and the inner wall of the vehicle compartment. (Emphasis Added)*

In light of the above statements, the clear teaching to be derived from Yamamoto et al. is that without a seam between the upper chamber 52 and the upper rear chamber 53 tearing open, the controlled pressure relief of upper chamber 52 and corresponding inflation of upper rear chamber 53 will not be realized. Even if full inflation of the upper rear chamber 53 could be realized, the



inflation would be substantially delayed since the seam would not open and gas flow would be restricted.

Potentially even more important, if the alteration proposed by the Office Action were implemented, the upper chamber 52 and upper rear chamber 53 would not be combined into one unit. Rather, the seam 57 would give rise to an uninflated zone at the intersection between the two chambers where the seam is located. Thus, in order to make the proposed modification to the primary reference, one would have to sacrifice a degree of cushioning at the location between the two chambers which is located directly opposite the passenger's head while placing a potentially abrasive seam at the same location.

Appellant respectfully submits that the principle of operation of the primary reference to Yamamoto et al. includes the development of a unitary cushioning chamber formed by the upper chamber 52 and the upper rear chamber 53 as well as controlled deployment of the upper rear chamber which is fully realized only upon the development of adequate pressure within the upper chamber 52. That is, the upper rear chamber 53 first is deployed in an upward direction to clear the seat belt and then after the seam is entirely torn, the upper rear chamber 53 can continue to expand rearwardly. Based on the teachings in the reference that rearward expansion occurs only after the seam is entirely torn, it appears that such operation would be fundamentally changed if the tear seam were replaced with a permanent seam as advocated. It is well established that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP §2143.01.

It is also well established that if the proposed modification would render the prior art invention unsatisfactory for its intended purpose, then the suggestion or modification to make the modification is presumptively lacking. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). In the present case, the changes proposed by the Office Action would leave an uninflated zone at the location of the seam between the upper chamber and the upper rear chamber rather than the unitary inflated cushion taught by the reference. As best understood, due to the

arrangement of the chambers in the primary reference this uninflated zone would be exactly at the passenger's head. Moreover the ability to increase the flow opening to the upper rear chamber thereby rapidly inflating the upper rear chamber during the secondary portion of the impact would be lost. Thus, a diminished degree of head protection would be provided thereby weighing against the proposed modification.

*Issue 3 - Whether claims 5, 6, 16 and 17 are patentable under 35 U.S.C. 103(a) over U.S. patent 6,065,772 to Yamamoto et al. in view of U.S. Patent 6,129,377 to Okumura et al. and in further view of U.S. Patent 5,618,595 to Matsushima et al.?*

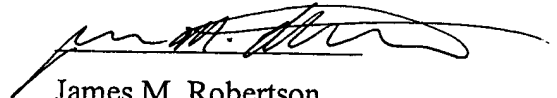
Each of these claims is dependent from claims addressed in issue 2. Accordingly, for the reasons set forth above, it is believed that these claims are also patentable.

### **CONCLUSION**

For the extensive reasons advanced above, Appellant respectfully contends that the application satisfies the requirements of 35 U.S.C. 112 first paragraph and that the cited art relied upon by the Examiner is insufficient to support rejection of the claims. Therefore, reversal of all rejections is courteously solicited.

To any extent as may be necessary for acceptance and consideration of this Brief on Appeal a petition for extension of time is hereby made. Authorization is provided to deduct any fee including any extension of time fee as may be required from Deposit Account No. 50-2802.

Respectfully submitted,



James M. Robertson  
Reg. No. 36,905  
864-987-9696 (phone)  
864-987-9686 (fax)

Date: April 12, 2004

## Appendix

### Claims in Application 09/805,586

1. An air bag assembly in a vehicle for side impact protection of a vehicle occupant, the air bag assembly comprising:
  - an inflator for discharging a gaseous inflation medium; and
  - an air bag cushion including a first inflatable portion proximal to the inflator for cushioning the torso of the vehicle occupant, a second inflatable portion distal from the inflator for cushioning the head of the vehicle occupant, a first expansion restraining element extending partially but not completely across the width of the air bag cushion in substantially nonparallel relation to a flow path of said gaseous inflation medium between the first and second inflatable portions, and at least a second expansion restraining element extending partially but not completely across the width of the air bag cushion in opposing staggered relation to the first expansion restraining element in substantially nonparallel relation to said flow path of said gaseous inflation medium, wherein the expansion restraining elements are adapted to remain operative so as to provide expansion restraint upon full inflation of the air bag cushion without failing such that the expansion restraining elements restrict expansion of the air bag cushion in the region between the first and second inflatable portions.
2. The invention according to Claim 1, wherein the expansion restraining elements comprise integral connective seam structures.
3. The invention according to Claim 1, wherein the air bag cushion is formed from a single piece of material.
4. The invention according to Claim 3, wherein the single piece of material is a woven textile.
5. The invention according to claim 4, wherein the woven textile is formed from a plurality of yarns selected from the group consisting of nylon yarns and polyester yarns and wherein said plurality of yarns have a linear density in the range of about 105 denier to about 840 denier.
6. The invention according to Claim 5, wherein the denier per filament of the yarns forming the woven textile is in the range of about 3 to about 6.

7. The invention according to Claim 1, wherein the air bag cushion is formed from a substantially flat blank of material which is folded to form a folded structure having two layers enclosed by the application of connective perimeter seams along the perimeter of the folded structure.

8. The invention according to Claim 7, wherein the connective perimeter seams are selected from the group consisting of:  
sewn seams, RF welded seams, ultrasonic welded seams, and adhesive bonding seams.

9. The invention according to Claim 7, wherein the expansion restraining elements comprise connective seams extending between the two layers of the folded structure.

10. The invention according to Claim 9, wherein the expansion restraining elements have a generally rounded profile.

11. An air bag assembly in a vehicle for side protection of a vehicle occupant, the air bag assembly comprising:  
an inflator for discharging inflation gas; and  
a gas inflatable air bag cushion for deployment adjacent the vehicle occupant wherein the air bag cushion comprises an upper boundary, opposing lateral sides extending away from the upper boundary, and a mouth opening for receipt of the inflation gas, the air bag cushion being formed by folding a single blank of material along a predetermined fold line to form a folded structure of two layers, applying connective perimeter seams around the perimeter of the folded structure, and applying a plurality of expansion restraining elements between the layers of the folded structure wherein said expansion restraining elements extend partially but not completely across the width of the airbag cushion into the interior of the air bag cushion in offset staggered relation from said opposing lateral sides and wherein the expansion restraining elements are adapted to remain operative so as to provide expansion restraint upon full inflation of the air bag cushion without failing.

12. An air bag assembly in a vehicle for side impact protection of a vehicle occupant, the air bag assembly comprising:  
an inflator for discharging a gaseous inflation medium; and  
an air bag cushion including a first inflatable portion proximal to the inflator for cushioning the torso of the vehicle occupant, a second inflatable portion distal from the inflator for

cushioning the head of the vehicle occupant, a first expansion restraining element extending partially but not completely across the width of the air bag cushion in substantially nonparallel relation to a flow path of said gaseous inflation medium between the first and second inflatable portions, and at least a second expansion restraining element extending partially but not completely across the width of the air bag cushion in opposing staggered relation to the first expansion restraining element in substantially nonparallel relation to said flow path of said gaseous inflation medium, wherein the expansion restraining elements are adapted to remain operative so as to provide expansion restraint upon full inflation of the air bag cushion without failing such that the expansion restraining elements restrict expansion of the air bag cushion in the region between the first and second inflatable portions and wherein at least a portion of the expansion restraining elements have a generally rounded profile.

13. The invention according to Claim 12, wherein the expansion restraining elements comprise integral connective seam structures.

14. The invention according to Claim 12, wherein the air bag cushion is formed from a single piece of material.

15. The invention according to Claim 14, wherein the single piece of material is a woven textile.

16. The invention according to claim 15, wherein the woven textile is formed from a plurality of yarns selected from the group consisting of nylon yarns and polyester yarns and wherein said plurality of yarns have a linear density in the range of about 105 denier to about 840 denier.

17. The invention according to Claim 16, wherein the denier per filament of the yarns forming the woven textile is in the range of about 3 to about 6.

18. The invention according to Claim 12, wherein the air bag cushion is formed from a substantially flat blank of material which is folded to form a folded structure having two layers enclosed by the application of connective perimeter seams along the perimeter of the folded structure.

19. The invention according to Claim 18, wherein the connective perimeter seams are selected from the group consisting of:

sewn seams, RF welded seams, ultrasonic welded seams, and adhesive bonding seams.

20. The invention according to Claim 18, wherein the expansion restraining elements comprise connective seams extending between the two layers of the folded structure.